FIG. 1

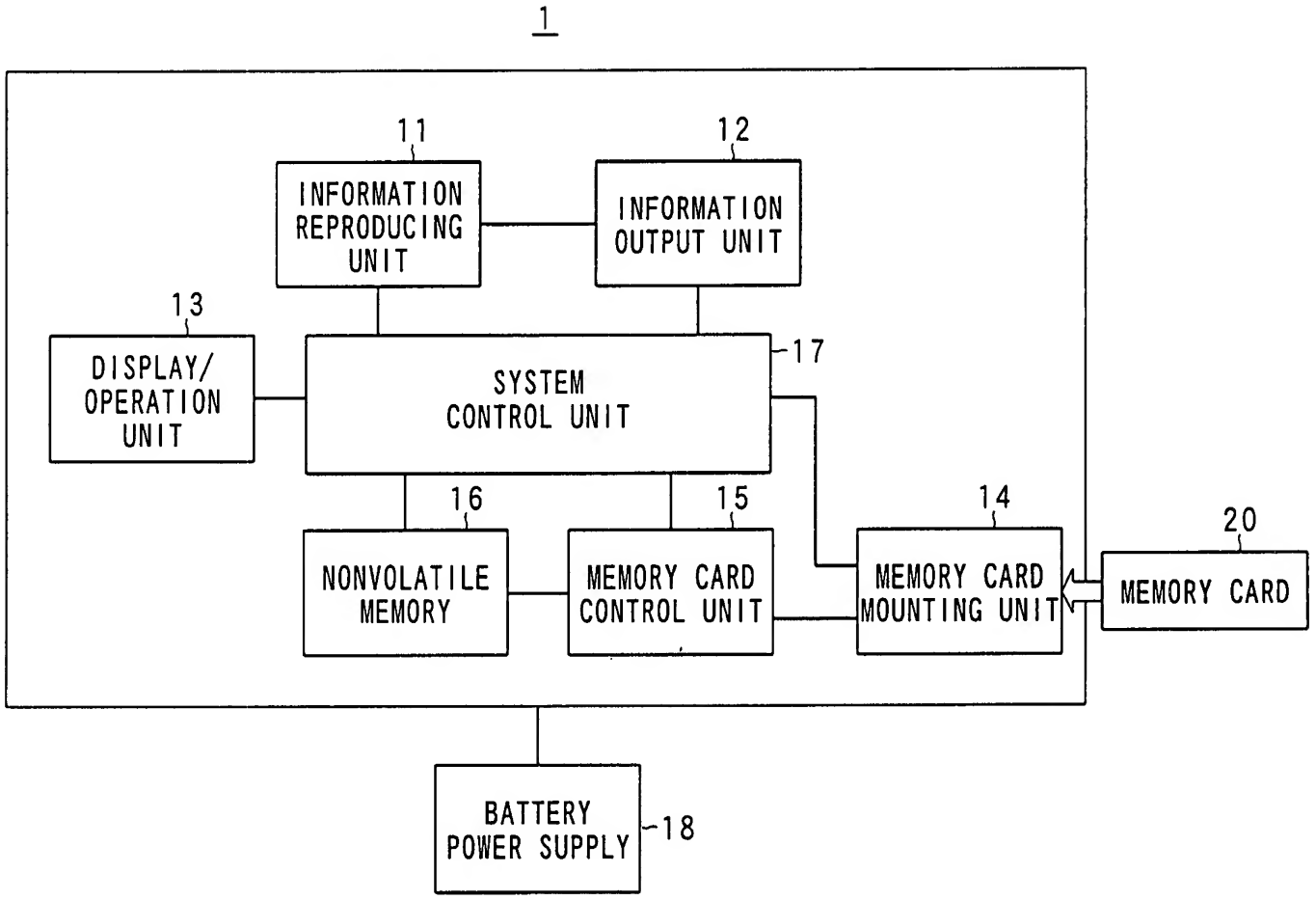

1
11
INFORMATION REPRODUCING UNIT
12
INFORMATION OUTPUT UNIT
13
DISPLAY/ OPERATION UNIT
SYSTEM CONTROL UNIT
17
16
NONVOLATILE MEMORY
15
MEMORY CARD CONTROL UNIT
14
MEMORY CARD MOUNTING UNIT
20
MEMORY CARD
BATTERY POWER SUPPLY
18

FIG. 2

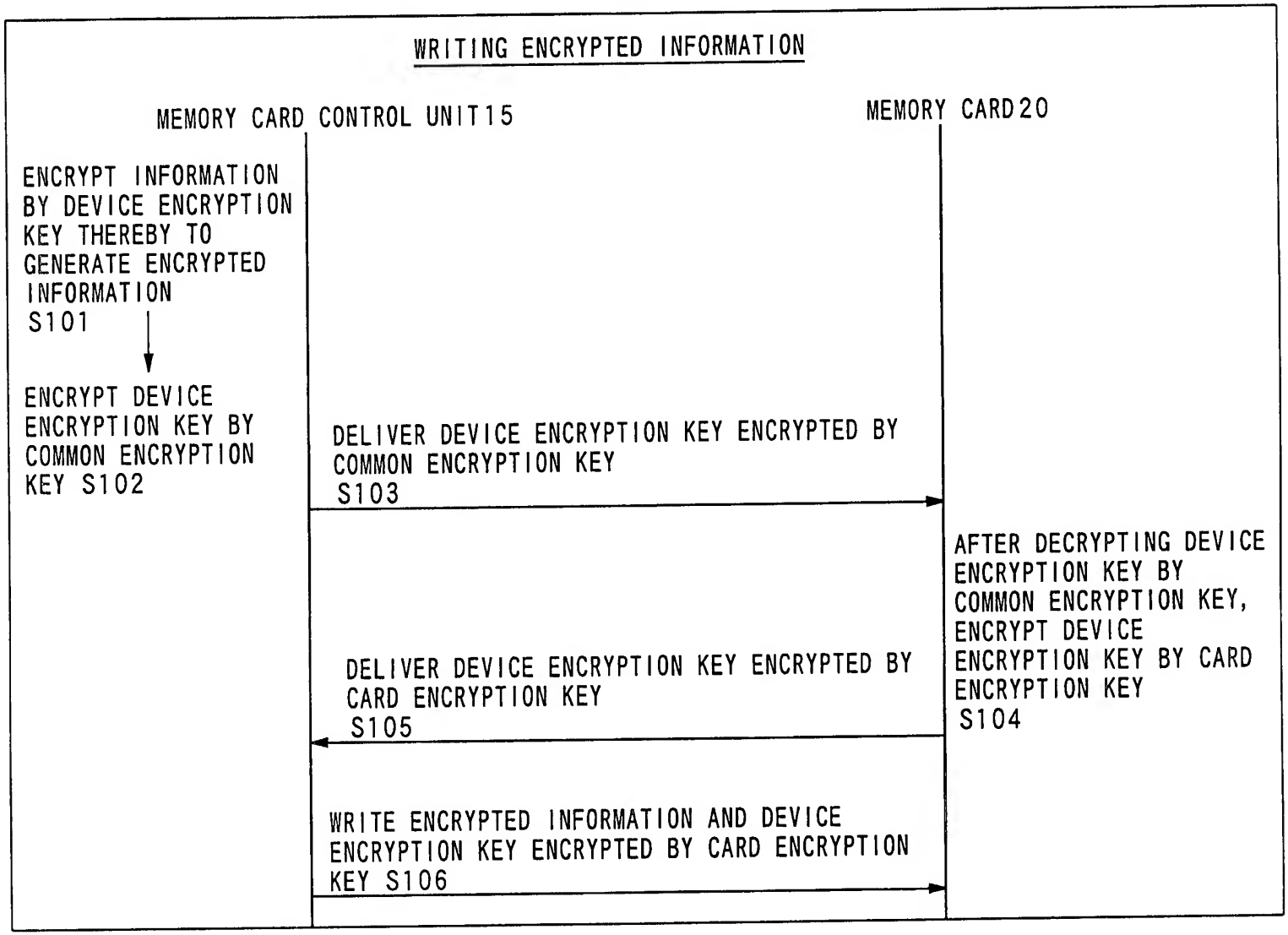

WRITING ENCRYPTED INFORMATION
MEMORY CARD CONTROL UNIT 15
MEMORY CARD 20
ENCRYPT INFORMATION BY DEVICE ENCRYPTION KEY THEREBY TO GENERATE ENCRYPTED INFORMATION S101
ENCRYPT DEVICE ENCRYPTION KEY BY COMMON ENCRYPTION KEY S102
DELIVER DEVICE ENCRYPTION KEY ENCRYPTED BY COMMON ENCRYPTION KEY S103
AFTER DECRYPTING DEVICE ENCRYPTION KEY BY COMMON ENCRYPTION KEY, ENCRYPT DEVICE ENCRYPTION KEY BY CARD ENCRYPTION KEY S104
DELIVER DEVICE ENCRYPTION KEY ENCRYPTED BY CARD ENCRYPTION KEY S105
WRITE ENCRYPTED INFORMATION AND DEVICE ENCRYPTION KEY ENCRYPTED BY CARD ENCRYPTION KEY S106

FIG. 3

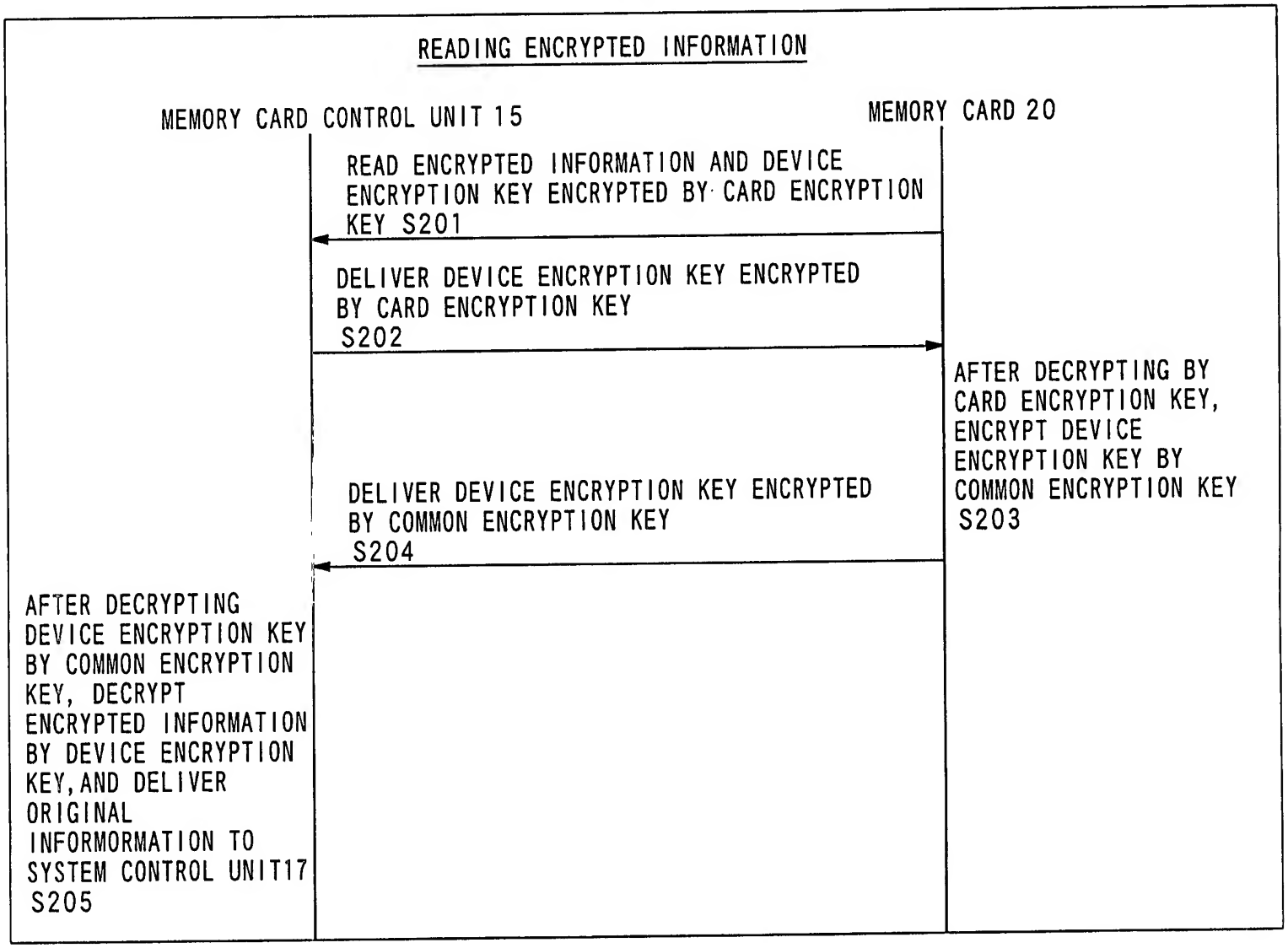

READING ENCRYPTED INFORMATION
MEMORY CARD CONTROL UNIT 15
MEMORY CARD 20
READ ENCRYPTED INFORMATION AND DEVICE ENCRYPTION KEY ENCRYPTED BY CARD ENCRYPTION KEY S201
DELIVER DEVICE ENCRYPTION KEY ENCRYPTED BY CARD ENCRYPTION KEY S202
AFTER DECRYPTING BY CARD ENCRYPTION KEY, ENCRYPT DEVICE ENCRYPTION KEY BY COMMON ENCRYPTION KEY S203
DELIVER DEVICE ENCRYPTION KEY ENCRYPTED BY COMMON ENCRYPTION KEY S204
AFTER DECRYPTING DEVICE ENCRYPTION KEY BY COMMON ENCRYPTION KEY, DECRYPT ENCRYPTED INFORMATION BY DEVICE ENCRYPTION KEY, AND DELIVER ORIGINAL INFORMORMATION TO SYSTEM CONTROL UNIT17 S205

FIG. 4

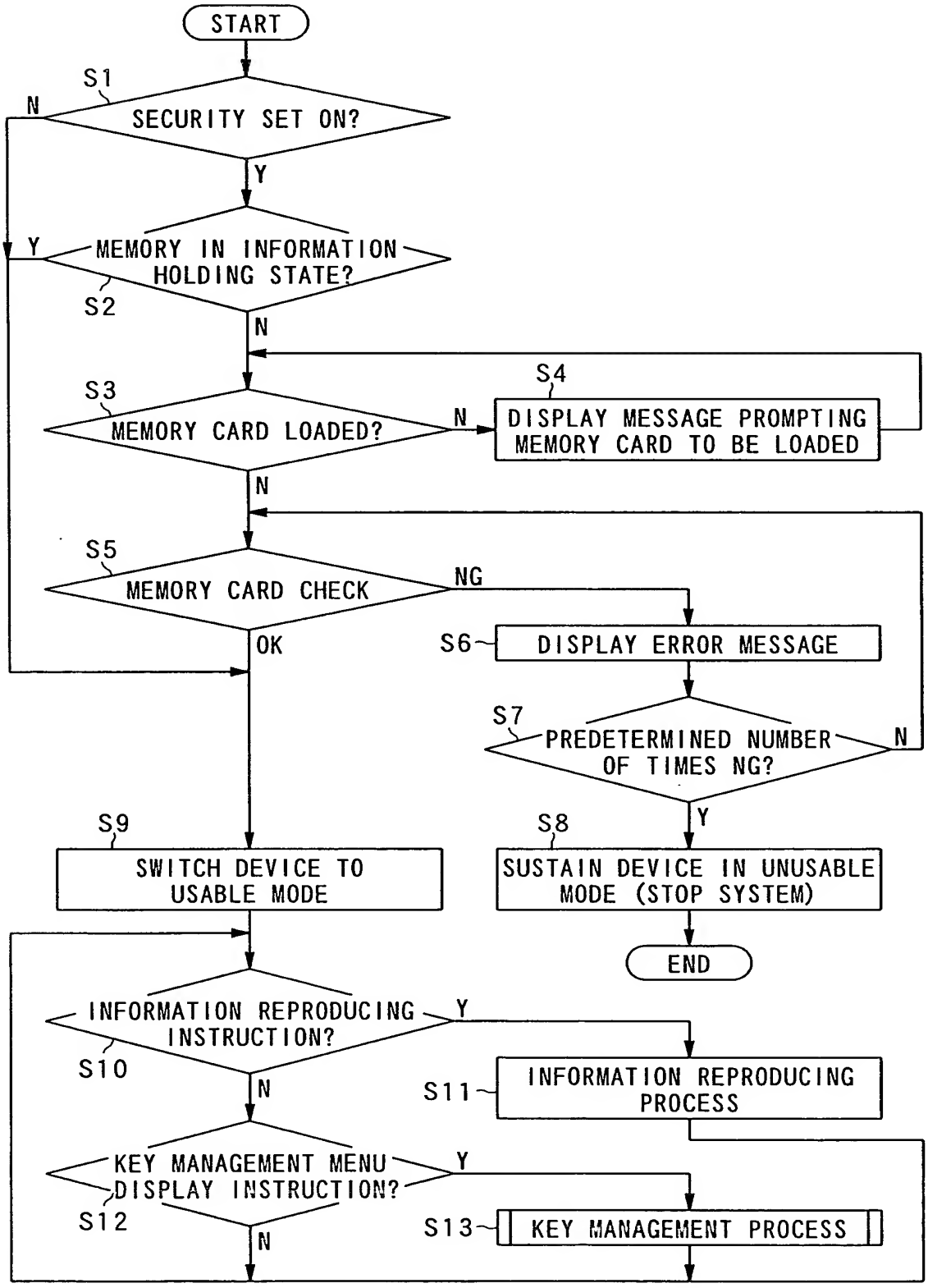

START
S1
SECURITY SET ON?
N
Y
MEMORY IN INFORMATION HOLDING STATE?
Y
S2
N
S3
MEMORY CARD LOADED?
N
S4
DISPLAY MESSAGE PROMPTING MEMORY CARD TO BE LOADED
N
S5
MEMORY CARD CHECK
NG
OK
S6
DISPLAY ERROR MESSAGE
S7
PREDETERMINED NUMBER OF TIMES NG?
N
Y
S8
SUSTAIN DEVICE IN UNUSABLE MODE (STOP SYSTEM)
END
S9
SWITCH DEVICE TO USABLE MODE
INFORMATION REPRODUCING INSTRUCTION?
Y
S10
N
S11
INFORMATION REPRODUCING PROCESS
KEY MANAGEMENT MENU DISPLAY INSTRUCTION?
Y
S12
N
S13
KEY MANAGEMENT PROCESS

FIG. 5

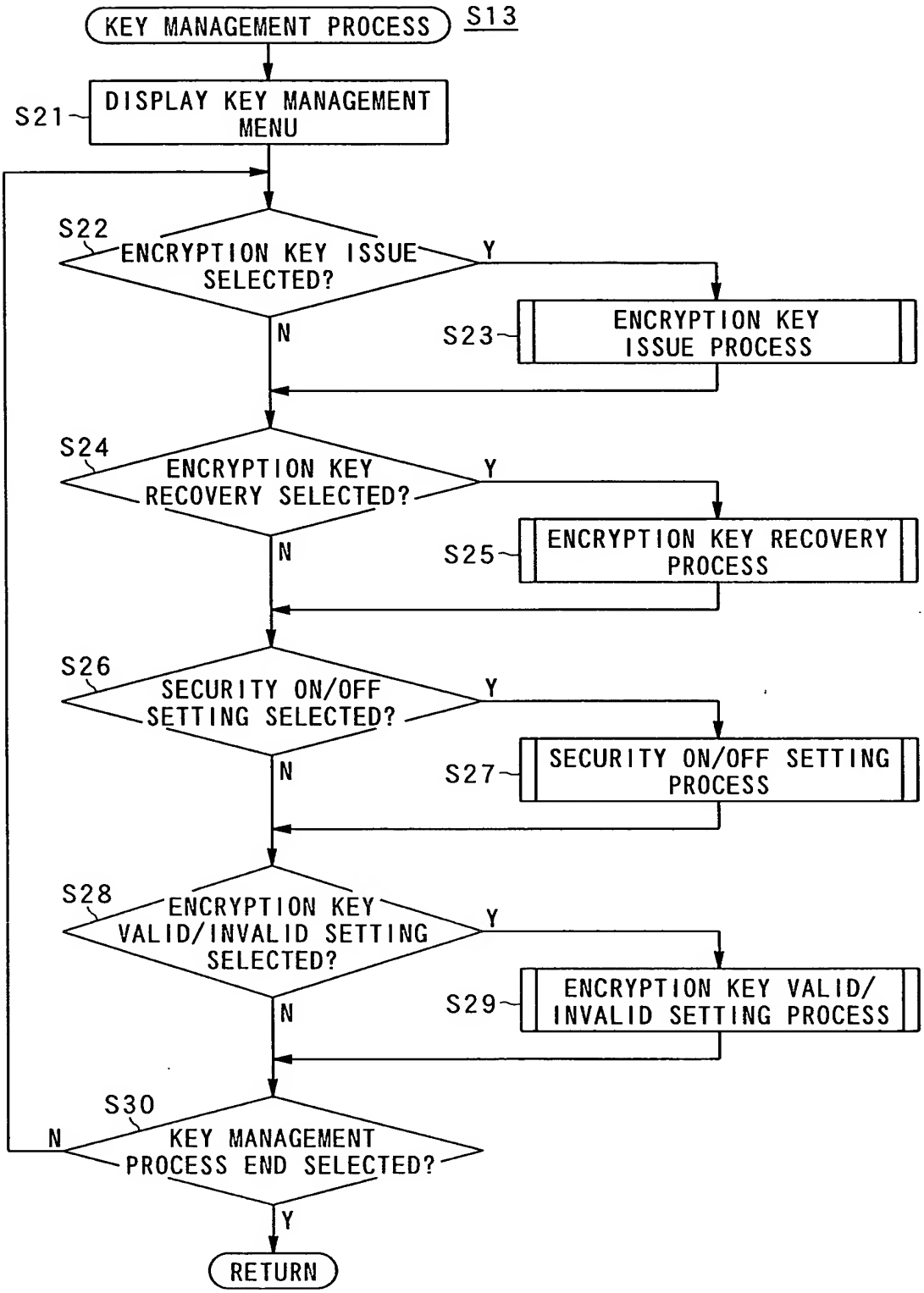

KEY MANAGEMENT PROCESS
S13
S21
DISPLAY KEY MANAGEMENT MENU
S22
ENCRYPTION KEY ISSUE SELECTED?
Y
N
S23
ENCRYPTION KEY ISSUE PROCESS
S24
ENCRYPTION KEY RECOVERY SELECTED?
Y
N
S25
ENCRYPTION KEY RECOVERY PROCESS
S26
SECURITY ON/OFF SETTING SELECTED?
Y
N
S27
SECURITY ON/OFF SETTING PROCESS
S28
ENCRYPTION KEY VALID/INVALID SETTING SELECTED?
Y
N
S29
ENCRYPTION KEY VALID/INVALID SETTING PROCESS
S30
N
KEY MANAGEMENT PROCESS END SELECTED?
Y
RETURN

FIG. 6A

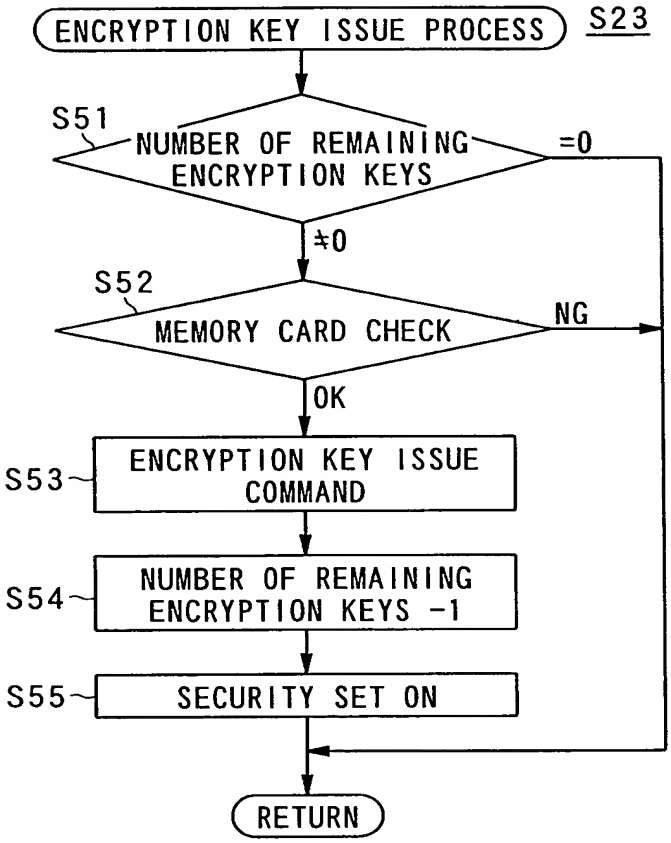

ENCRYPTION KEY ISSUE PROCESS
S23
S51
NUMBER OF REMAINING ENCRYPTION KEYS
=0
≠0
S52
MEMORY CARD CHECK
NG
OK
S53
ENCRYPTION KEY ISSUE COMMAND
S54
NUMBER OF REMAINING ENCRYPTION KEYS -1
S55
SECURITY SET ON
RETURN

FIG. 6B

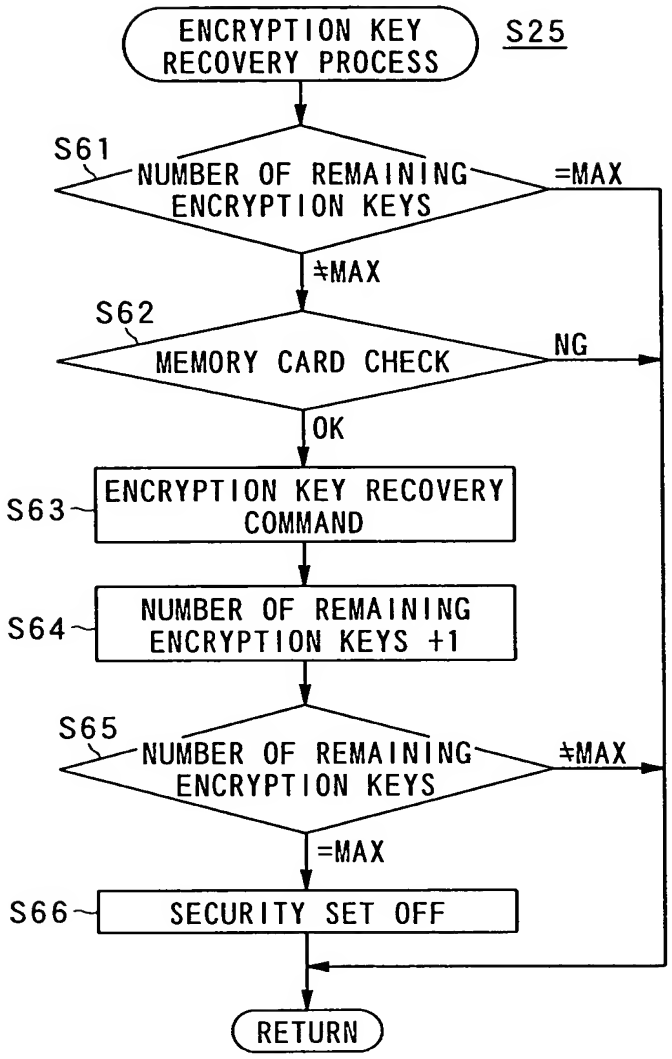

ENCRYPTION KEY RECOVERY PROCESS
S25
S61
NUMBER OF REMAINING ENCRYPTION KEYS
=MAX
≒MAX
S62
MEMORY CARD CHECK
NG
OK
S63
ENCRYPTION KEY RECOVERY COMMAND
S64
NUMBER OF REMAINING ENCRYPTION KEYS +1
S65
NUMBER OF REMAINING ENCRYPTION KEYS
≒MAX
=MAX
S66
SECURITY SET OFF
RETURN

FIG. 6C

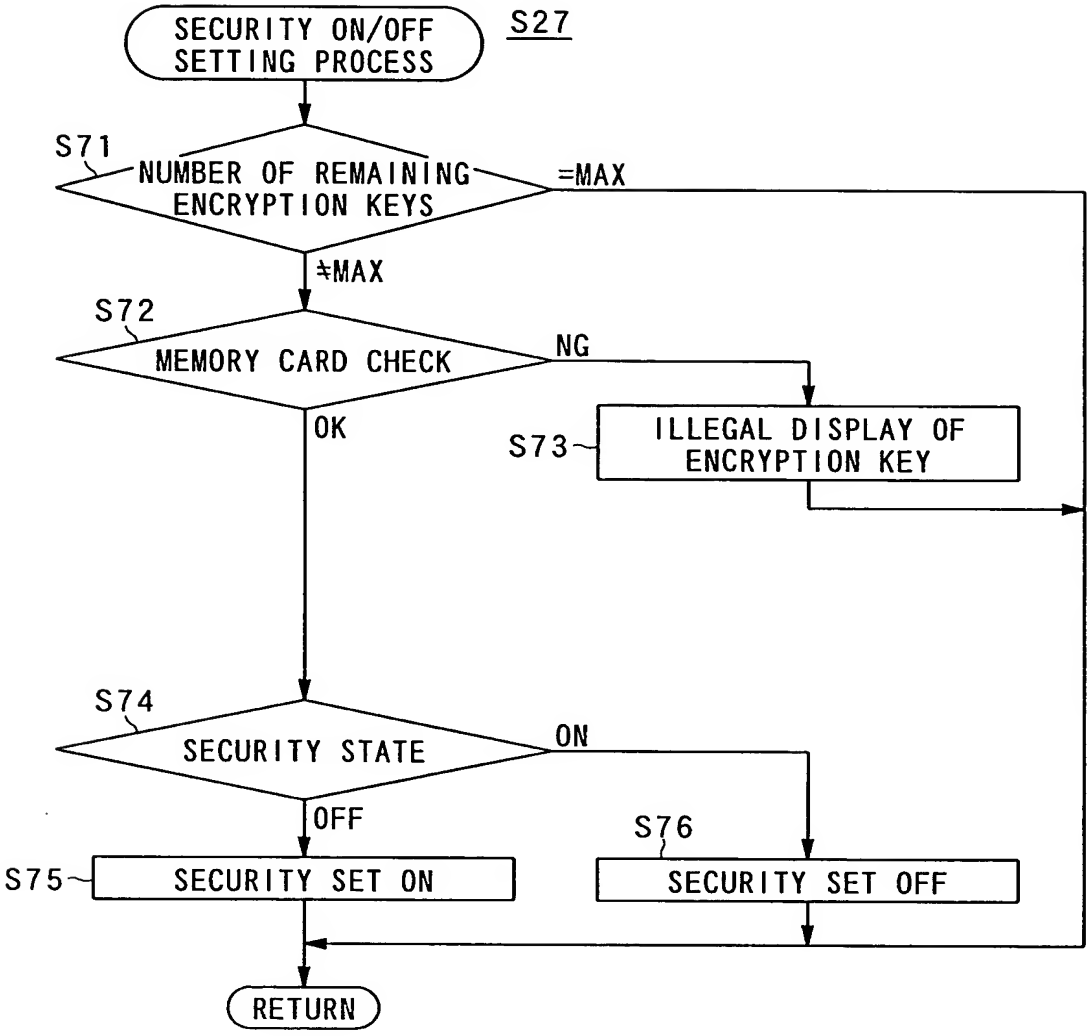
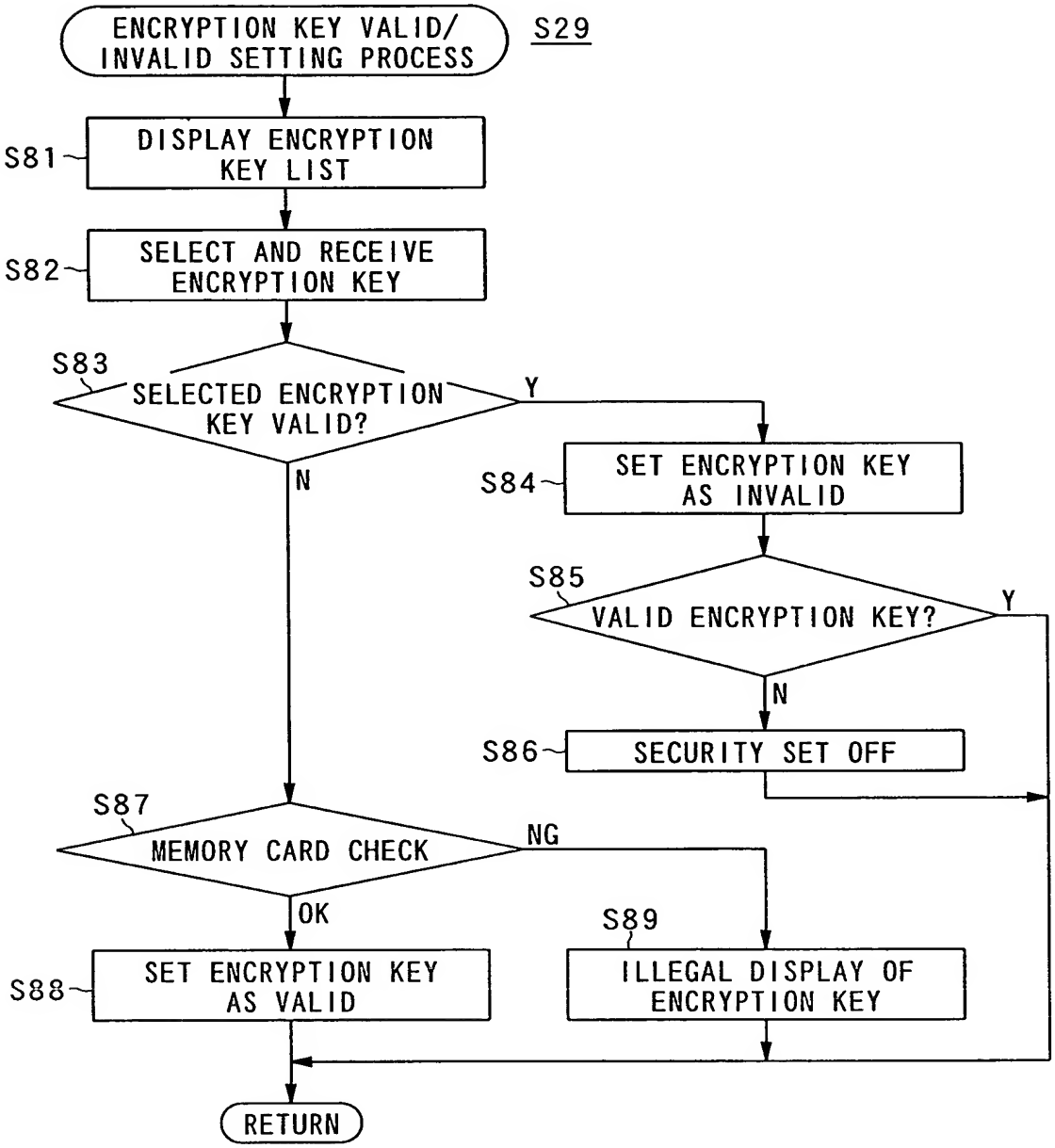

SECURITY ON/OFF SETTING PROCESS
S27
S71
NUMBER OF REMAINING ENCRYPTION KEYS
=MAX
≠MAX
S72
MEMORY CARD CHECK
NG
OK
S73
ILLEGAL DISPLAY OF ENCRYPTION KEY
S74
SECURITY STATE
ON
OFF
S76
S75
SECURITY SET ON
SECURITY SET OFF
RETURN

FIG. 6D


ENCRYPTION KEY VALID/ INVALID SETTING PROCESS
S29
S81
DISPLAY ENCRYPTION KEY LIST
S82
SELECT AND RECEIVE ENCRYPTION KEY
S83
SELECTED ENCRYPTION KEY VALID?
Y
N
S84
SET ENCRYPTION KEY AS INVALID
S85
VALID ENCRYPTION KEY?
Y
N
S86
SECURITY SET OFF
S87
MEMORY CARD CHECK
NG
OK
S88
SET ENCRYPTION KEY AS VALID
S89
ILLEGAL DISPLAY OF ENCRYPTION KEY
RETURN